Blue on Blue: Tracking Blue Forces Across the MAGTF

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Blue on Blue:
Tracking Blue Forces Across the MAGTF

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During Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and subsequent Marine Air Ground Task Force (MAGTF) operations across the globe, have resulted in validating a critical requirement in the ability to precisely locate and track MAGTF forces on the joint coalition battlefield.[1] Current tracking and reporting systems such as the Data Automated Communication Terminal (DACT), Enhanced Position-Location Reporting System (EPLRS), and the Blue Force Tracker (BFT) have been integrated together to produce friendly situational awareness across the common operational picture (COP). However, "During OIF, the military experimented with as many as nine different blue force tracking systems, which often could not share information with one another.[2] The current employment of multiple blue force tracking devices across the MAGTF requires the implementation of a common blue force tracking capability across the Marine Corps in order to fully span the needs of the MAGTF forces in present—day operations.

Competing Capabilities

While the Marine Corps' primary tactical unit situational awareness (SA) system (DACT) provides a two-way path for injection and display of MAGTF position, location, and identification (PLI) data, it is currently limited to a

line of sight (LOS) transmission over the Enhanced Position Location Reporting System (EPLRS). The mounted DACT (M-DACT), program of record (POR) for blue force situational awareness (BFSA)/blue force tracking, further provides a secret high capability and visibility of the entire COP. However, current fielding plans for the DACT systems do not provide sufficient blue force PLI-inject capability to adequately display blue force positions on BFSA displays. Because the DACT will not be fielded in sufficient numbers, commanders will not be provided the level of blue force situational awareness surrounding the COP.

Due to the potential size and scope of the MAGTF operational area, rapid advancing maneuver units can often exceed the line of sight capabilities of the EPLRS network.[3] As a result, the Marine Corps is developing a beyond the line of sight EPLRS bridge called the ship-to-objective-maneuver (STOM) bridge to extend the reach of this vital tactical data network. At the same time, the army is also working to identify the most effective and efficient means to achieve Joint Blue Force Situational Awareness (JBFSA)."[4]

A recent PLI device adding blue PLI input to the COP is the satellite-based Blue Force Tracker (BFT). The BFT system was fielded to perform three main missions:

1) To allow U.S. Army units below the brigade level to "see" Marine positions on their BFT network.
2) To complement the common operational picture provided by the intelligence operations workstation (IOW) and M-DACT.
3) To allow non-line of sight, two-way messaging.

The BFT is a satellite-based tracking/communication system consisting of a mounted mobile unit and a base unit used to coordinate movement control within a particular group. The system is comprised of two variants. In order to carry out its stated missions, the BFT contains an Army and a Marine variant. The V-4 is the U.S. Army variant mounted exclusively on highly mobile, multi-wheeled vehicle (HMMWV) chassis. The USMC Backpack variant was designed both for installation in a HMMWV (or other weapons platforms), as well as combat operation center (COC) use.

Because the BFT is a non-developmental system that merges the Army's Force Battle Command Brigade and Below (FBCB2) with a commercial satellite network, the BFT provides flexible communications and generates a shared view of the battlespace. The system comprises of a GPS receiver, ruggedized computer with embedded FBCB2 functionality and L-band satellite transponder. The situational awareness and C2 messaging operates within the satellite network at a "sensitive but unclassified"

security level, utilizing a National Security Agency-approved commercial encryption algorithm.[5]

Another device in tracking blue forces is the Miniature Transmitter (MTX). The MTX provides the capability to identify position, track progress, and allows one-way, in-extremis communication from individual units or platforms. The MTX is intended to provide for real-time, in-transit visibility of blue force vehicles, aircraft, personnel and cargo within a theater of operations. The MTX is either handheld or vehicle/aircraft mounted and is employed at the discretion of the operational commander. The MTX provides real-time PLI injection of USMC Blue forces into the operational commander's COP; however, the MTX is incapably of text messaging and chat.

Operational Needs

One prime objective in blue force tracking is the ability to pinpoint the whereabouts of friendly forces in a rapidly changing battlespace.[6] In order to have the ability to precisely locate and track MAGTF forces on a Joint Coalition Battlefield, the Marine Corps needs a beyond line of sight (BLOS), one-way (PLI Inject) capability to provide a more robust COP and better address the BFT/SA needs of our MAGTF/Joint Force Commanders. Further, having a "portable, lightweight, low cost, self-contained, one-way

BFT transmission device will augment the limited BFT PLI capability currently provided by our DACT".[7] In order to fulfill these goals, PLI data generated by the BFT devices should be transmitted in a waveform and compatible with the developing Joint Blue Force Situational Awareness (JBFSA) architecture. Further, this data should be capable of being displayed on Marine Corps SA/COP displays (e.g. DACT and IOW).

Another blue force operational need arises when fratricide of friendly forces has occurred. During "major combat phase" of OIF in March and April of 2003, the preliminary analysis showed that fratricide of all types accounted for about eleven percent of 115 US battle deaths. These figures suggest a reduction in fratricide when compared to Desert Storm in 1991, where fratricide was blamed for thirty-five of 148 US battle deaths—or about twenty percent.[8]

The requirement/need for a blue force capability to locate, track, and identify friendly forces is included as part of Family of Systems (FoS) validated in the following documents:

- Joint Combat Identification (CID) mission need statement.
- Combat Identification Capstone Requirement Document.
- Beyond LOS/Non-Line of Sight BFT Mission Need Statement.

-DACT Operational Requirements Document.

Blue Force Solution

Because of the needs of our deploying MAGTF commanders to see the Joint COP and Tactical SA displays, “A low-cost, one-way (PLI-Inject), blue force tracking device, that transmits PLI data”, is required to better satisfy the BFSA needs of the MAGTF commander’s.[9] Because there are quite a few blue force tracking systems in the field,[10] the Joint Requirements Oversight Council tasked the Army and Marine Corps to merge their battlefield networks to build a single, blue force tracking system for ground forces. The Army is leading the BFT effort, which will retain the Army system’s name, FBCB2. The new system must combine the best features of Army and Marine Corps tracking systems. In creating a common operating picture for commanders, the system will use the Army’s ruggedized computers, graphics, system software, and non-line-of-sight networks and rely on the Marine Corps’ applications.

What is hoped that this system, with its increased tracking assets across the MAGTF, may seem to satisfy any fratricide issues; however, the fratricide prevention measures sat forth by the Pentagon at reducing the number of blue force tracking systems and improving communications between ground and air.

Army Lt. Gen. William S. Wallace, The Commander of V Corps during Iraqi Freedom, told lawmakers that the Army-Marine Corps fielding of the FBCB2 blue force tracking system was “extraordinarily successful,” but he pointed out that the system had “thin fielding” due to limitations in satellite capability and lack of time to produce additional units.[11] Because there was not enough bandwidth available to accommodate the fielding of blue force tracking system in great numbers on the battlefield, commanders were not able to adequately use the FBCB2 units that were available to them. Additionally, because multiple units were not available and only a select few commanders were able to experiment with the units; as a result, no one has a clear understanding of the FBCB2’s capability.

As newer hardware and software technologies emerge that increase the military’s ability to track and identify friendly forces throughout the MAGTF operating across the joint coalition battlefield, commanders must continue to assess Marine Corps blue force situational awareness against the needs and capabilities that span the MAGTF. The current use of multiple blue force tracking devices within the MAGTF must include the implementation of a common device in blue force tracking capability across the

Marine Corps in order to fully span the operational needs of MAGTF forces in present—day operations.

Notes

[1] S. Wells, Universal Needs Statement (UNS), Blue Force Tracking Device, March 2003.

[2] LtCol Mike Sweeney, USMC, Department Head, Marine Corps Information Superiority Branch, 2004.

[3] MajGen Stalder, USMC, I MEF C4I During Operation Iraqi Freedom, House Armed Services Committee Briefing, 21 October 2003.

[4] George Cahlink, “Blue Force Tracking”, Combining Ground Systems, Newslink Article, 2004.

[5] Scott R. Gourley, “OIF Lessons Highlight Comms Capability”, Military Information Technology, 1 May 2004.

[6] George Cahlink.

[7] United States Marine Corps, MARCORSYSCOM, MAGTF C4IR, Ground C2 Systems, Blue Force Tracker Capabilities, Nov 2004.

[8] George Cahlink.

[9] Scott R. Gourley.

[10] Col Ray Montford, USA, Project Manager, Blue Force Tracker, Newslink Article, 2004.

[11] LtGen William S. Wallace, USA, “Blue Force Tracking”, The Bandwidth Issue, Newslink Article, 2004.

Bibliography

George Cahlink, “Blue Force Tracking”, Combining Ground Systems, Newslink Article, 2004.

Scott R. Gourley, “OIF Lessons Highlight Comms Capability”, Military Information Technology, 1 May 2004.

Col Ray Montford, USA, Project Manager, Blue Force Tracker, Newslink Article, 2004.

United States Marine Corps, MARCORSYSCOM, MAGTF C4IR, Ground C2 Systems, Blue Force Tracker Capabilities, Nov 2004.

MajGen Stalder, USMC, I MEF C4I During Operation Iraqi Freedom, House Armed Services Committee Briefing, 21 October 2003.

S. Wells, Universal Needs Statement (UNS), Blue Force Tracking Device, March 2003.

LtCol Mike Sweeney, USMC, Department Head, Marine Corps Information Superiority Branch, 2004.

LtGen William S. Wallace, USA, “Blue Force Tracking”, The Bandwidth Issue, Newslink Article, 2004.